

ALLOCAPNIA POLEMISTIS (PLECOPTERA: CAPNIIDAE), NEW FOR MISSISSIPPI¹

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ABSTRACT: *Allocapnia polemistis* is recorded for the first time beyond the Black Warrior Uplift of Alabama, in Tishomingo Co., Mississippi. Scanning electron micrographs of the male genitalia are provided and the epiproct and 8th tergal process are compared with those of topotypes of *A. recta*, a closely related species.

Allocapnia polemistis was described by Ross and Ricker (1971) as a species endemic to the Black Warrior Uplift of Alabama. The original sample included 29 specimens (18♂ 11♀) from four sites in Marion, Walker and Winston counties; subsequent reports of Alabama stoneflies (Stark and Harris 1986) have not revealed additional records for *A. polemistis*, nor have reports from Mississippi (Stark 1979; Alford 1998) indicated the species occurs in that state. In 1996, we collected a single male specimen from Winston Co., Alabama. This specimen was examined with scanning electron microscopy in order to compare the epiproct structure of *A. polemistis* with other members of the *A. recta* complex (Tucker and Stark unpublished). More recently we collected specimens from a site in Tishomingo Co., Mississippi, and these were also studied with SEM. The data are here used to provide a more complete description of the male genital features for this rare species.

METHODS

Specimens stored in 80% ethanol were sonicated for 30 seconds, serially dehydrated to 100% ethanol and placed in two washes of hexamethyldisilazane for 30 minutes each. Specimens were attached to specimen stubs with double stick copper tape and sputter coated with gold-palladium before study with an AMRAY 1810D scanning electron microscope.

***Allocapnia polemistis* Ross and Ricker**

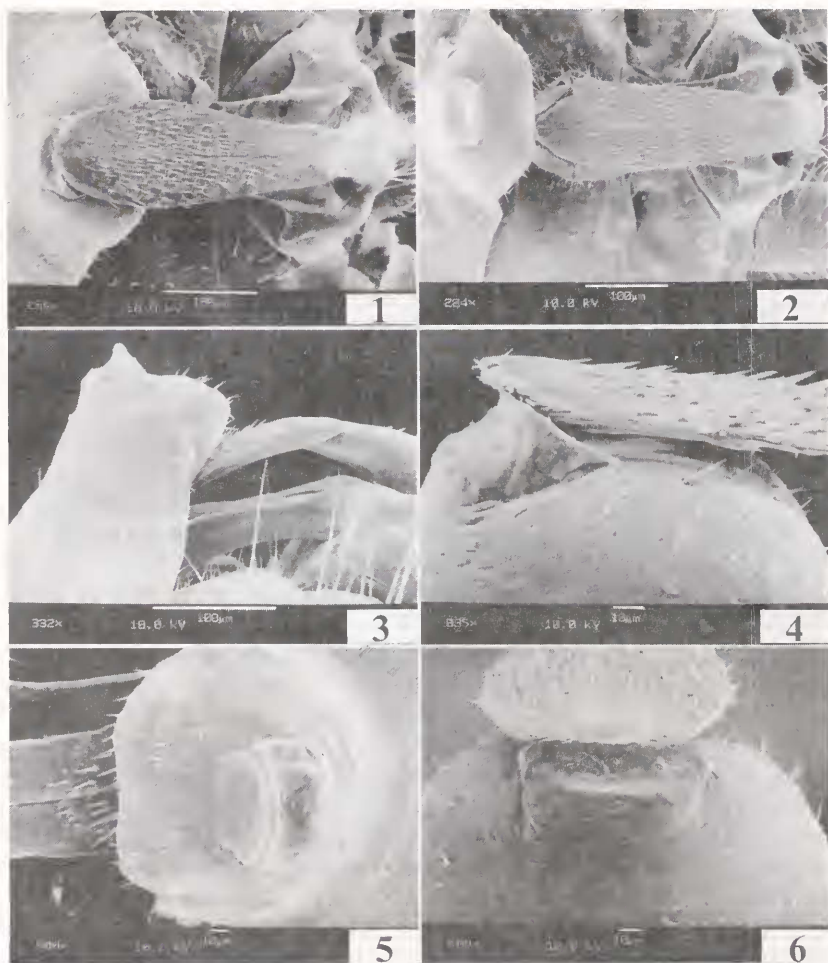
Allocapnia polemistis Ross and Ricker, 1971. Holotype ♂, 10 miles northeast of Jasper, Walker Co., Alabama.

Male. Epiproct upper limb recurved; apical section of upper limb paddle shaped and armed with stiff backward directed bristles (Figs. 1-2). Apical section approximately 290 µm long and 100 µm wide. A median sulcus extends from apex to base; armature ends subapically. Dorsal process of tergum 8 extends approximately 250 µm above segments 7 and 9 (Fig. 3). Dorsolat-

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Figs. 1-6. *Allocapnia polemistis* male genital features. 1-2. Dorsal limb of epiproct and 8th tergal process, dorsal aspect. 3-4. Lateral aspect of 8th tergal process. 5. Dorsal aspect of 8th tergal process. 6. Frontal aspect of 8th tergal process. (Figs. 1, 3-6. Tishomingo Co., MS., Fig. 2. Winston Co., AL.).

eral aspect abruptly flattened near apex to form an anterior, subapical shelf approximately 45 μm wide (Figs. 3-5). Dorsum of process terminates in a sharp slightly arcuate ridge approximately 75-80 μm wide (Figs. 5-6). Anterior shelf with a few scattered tubercles (Fig. 5). Caudad to the dorsal ridge, the process drops almost vertically to a large flat shelf bearing scattered setae at the posterior angles (Figs. 3-5).

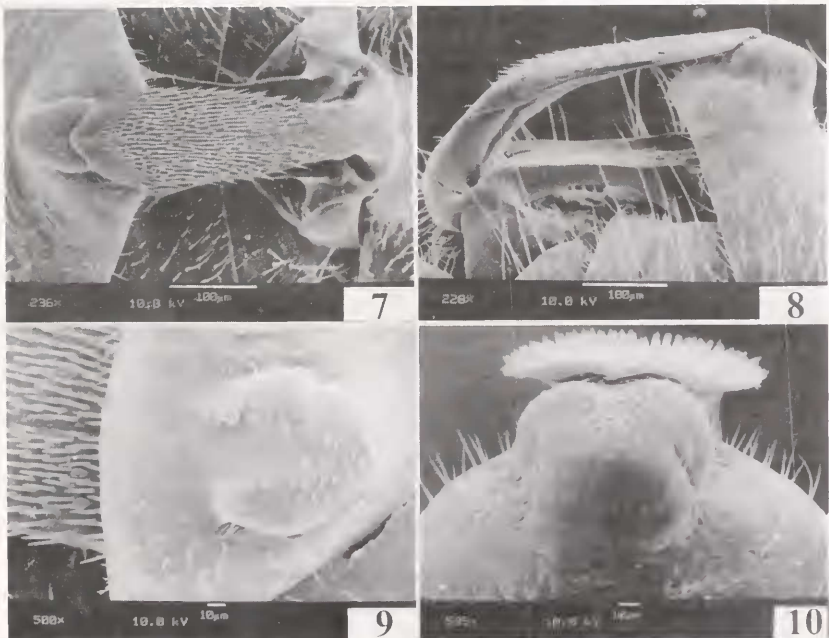
Material.- Alabama: Winston Co., Sipsey River near Natural Bridge, 20 January 1996, B.P. Stark, M.H. Alford, S.G. Tucker, 1♂. Mississippi: Tishomingo Co., Rock Quarry Creek, Tishomingo State Park, 4 January 2000, B.P. Stark, M.H. Alford, 3♂.

Allocapnia recta (Claassen)

Capnella recta Claassen, 1924. Holotype ♂, Ithaca, Tompkins Co., New York.

Allocapnia recta: Ross and Ricker, 1971.

Male.- Epiproct upper limb recurved; apical section of upper limb paddle-shaped and armed with stiff backward directed bristles (Figs. 7-8). Apical section approximately 290 μm long and 100 μm wide. A median sulcus extends from apex to base; armature ends subapically (Fig. 7). Dorsal process of tergum 8 terminates in a rounded plateau armed with tubercles which form a



Figs. 7-10. *Allocapnia recta* male genital features. 7. Dorsal limb of epiproct and 8th tergal process, dorsal aspect. 8. Epiproct and 8th tergal process, lateral aspect. 9. Dorsal aspect of 8th tergal process. 10. Frontal aspect of 8th tergal process.

V-shaped pattern on the dorsum (Figs. 9-10). Dorsolateral aspect of process without anterior shelf or dorsal ridge (Figs. 8-10).

Material.- New York: Tompkins Co., Cascadilla Creek, Ithaca, 13 December 1999, M.H. Alford, 10 ♂, 5 ♀.

DISCUSSION

The epiproct structure of *A. polemistis* is quite similar to that of *A. recta* (Ross and Ricker 1971; Alford 1998). The lateral and dorsal aspects of the apical section for these species have the same approximate dimensions and the armature is of the same type, although somewhat more developed in *A. recta* (Figs. 1, 7). The dorsal process, however, differs both in shape and in texture. *A. recta* topotype specimens lack an anterior shelf and ridge and the dorsal aspect is wide and tuberculate (Figs. 8-10) whereas *A. polemistis* has a distinct anterior shelf and thin dorsal ridge that lacks tubercles (Figs. 3-5).

The Mississippi specimens are the first records for *A. polemistis* outside the Black Warrior Uplift of Alabama and brings the number of *Allocapnia* species known for Mississippi to seven (Stark 1979). No other winter stoneflies were collected at the Tishomingo Co. site but *A. rickeri* was previously taken there (Stark 1979) and we collected *A. recta* at a nearby site (Indian Creek, Tishomingo Co., MS) on the same date that *A. polemistis* was collected.

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